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Term: L34 and uradine

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Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; PLUR=YES; OP=ADJ			
L35	L34 and uradine	1	L35
L34	20040086924.pn.	2	L34
DB=USPT,EPAB,JPAB,DWPI; PLUR=YES; OP=ADJ			
L33	20040086924.pn.	1	L33
DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; PLUR=YES; OP=ADJ			
L32	uradine	55	L32
L31	l30 and uradine	0	L31
DB=USPT,EPAB,JPAB,DWPI; PLUR=YES; OP=ADJ			
L30	20040086924.pn.	1	L30
L29	L28 and uradine	0	L29
L28	6706481.pn.	3	L28
L27	l17 and uradine	0	L27
L26	l25 and uradine	0	L26
L25	l22 and (fluoresc$4 or red or glue or green)	1	L25
L24	L23 and fluores$1	0	L24
L23	l22 and aptamer$1	2	L23

L22	6680377.pn.	2	L22
L21	6531286.pn.	2	L21
L20	6242246.pn.	2	L20
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L19	5989823.pn.	2	L19
L18	5866670.pn.	2	L18
L17	l16 and (flurescein or cascade or texas or rhodamine)	1	L17
L16	5849489.pn.	2	L16
L15	L14 and aptamer$1	0	L15
L14	5728525.pn.	2	L14
L13	L12 and aptamer$1	0	L13
L12	5650275.pn.	2	L12
L11	L10 and aptamer$1	0	L11
L10	5641629.pn.	3	L10
L9	L8 and (label$3 or reporter$1)	0	L9
L8	l7 and fluoresc$4	0	L8
L7	L6 and random$4	1	L7
L6	l4 and aptamer$1	1	L6
L5	L4 and apatmer$1	0	L5
L4	5631146.pn.	2	L4
L3	l1 and aptamer$1	0	L3
L2	L1 and ((rna or dna) near5 aptamer$1)	0	L2
L1	5445935.pn.	2	L1

END OF SEARCH HISTORY

ANSWER 6 OF 8 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2
AN 2000:142689 CAPLUS
DN 132:331520
TI Designed Signaling Aptamers that Transduce Molecular Recognition to Changes in Fluorescence Intensity
AU Jhaveri, Sulay D.; Kirby, Romy; Conrad, Rick; Maglott, Emily J.; Bowser, Michael; Kennedy, Robert T.; Glick, Gary; Ellington, Andrew D.
CS Department of Chemistry and Biochemistry, University of Texas at Austin, Austin, TX, 78712, USA
SO Journal of the American Chemical Society (2000), 122(11), 2469-2473
CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB We have engineered aptamers that contain fluorescent reporters and that signal the presence of cognate ligands in solution Two different anti-adenosine "signaling aptamers", one made from RNA and one from DNA, can selectively signal the presence of adenosine in solution Increases in fluorescence intensity reproducibly follow increases in adenosine concentration, and can be used for quantitation. The facile methods we have developed can potentially be used for generating a wide variety of signaling aptamers for use in sensor arrays.
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI Designed Signaling Aptamers that Transduce Molecular Recognition to Changes in Fluorescence Intensity
AU Jhaveri, Sulay D.; Kirby, Romy; Conrad, Rick; Maglott, Emily J.; Bowser, Michael; Kennedy, Robert T.; Glick, Gary; Ellington, Andrew D.
AB We have engineered aptamers that contain fluorescent reporters and that signal the presence of cognate ligands in solution Two different anti-adenosine "signaling aptamers", one made from RNA and one from DNA, can selectively signal the presence of adenosine in solution Increases in fluorescence intensity reproducibly follow increases in adenosine concentration, and can be used for quantitation. The facile methods we have developed can potentially be used for generating a wide variety of signaling aptamers for use in sensor arrays.
ST fluorometry mol recognition signaling aptamer DNA RNA fluorescein acridine
IT Fluorometry
Molecular recognition
(designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT DNA
RNA
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamer component; designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT 56-65-5, Adenosine 5'-(tetrahydrogen triphosphate), analysis 58-61-7, Adenosine, analysis
RL: ANT (Analyte); ANST (Analytical study)
(designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT 260-94-6, Acridine 2321-07-5
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamer component; designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT 268198-60-3
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamer, ATP-R-F2; designed signaling

aptamers that transduce mol. recognition to changes in fluorescence intensity)

IT 150827-40-0D, acridine or fluorescein containing
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamers, ATP-R-Ac13 and ATP-R-F13; designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)

IT 268198-61-4D, fluorescein containing
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamers, DFL0,DFL7 and DFL8; designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)

ANSWER 1 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 1

AN 2006:1250278 CAPLUS

DN 146:179777

TI Ribozyme-Mediated Signal Augmentation on a Mass-Sensitive Biosensor

AU Knudsen, Scott M.; Lee, Joonhyung; Ellington, Andrew D.; Savran, Cagri A.

CS Department of Chemistry and Biochemistry, University of Texas at Austin, Austin, TX, 78712, USA

SO Journal of the American Chemical Society (2006), 128(50), 15936-15937
CODEN: JACSAT; ISSN: 0002-7863

PB American Chemical Society

DT Journal

LA English

AB Mass-based detection methods such as the quartz crystal microbalance (QCM) offer an attractive option to label-based methods; however the sensitivity is generally lower by comparison. In particular, low-mol.-weight analytes can be difficult to detect based on mass addition alone. In this communication, the authors present the use of effector-dependent ribozymes (aptazymes) as reagents for augmenting small ligand detection on a mass-sensitive device. Two distinct aptazymes were chosen: an L1-ligase-based aptazyme (L1-Rev), which is activated by a small peptide (MW ≈ 2.4 kDa) from the HIV-1 Rev protein, and a hammerhead cleavase-based aptazyme (HH-theo3) activated by theophylline (MW = 180 Da). Aptazyme activity was observed in real time, and low-mol.-weight analyte detection has been successfully demonstrated with both aptazymes.

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Ribozyme-Mediated Signal Augmentation on a Mass-Sensitive Biosensor

AU Knudsen, Scott M.; Lee, Joonhyung; Ellington, Andrew D.; Savran, Cagri A.

ST ribozyme mediated signal augmentation mass sensitive biosensor

IT Immobilization, molecular or cellular
(aptazyme; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT Aptamers
(aptazymes; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT Ribozymes
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(aptazymes; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT Ribozymes
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(hammerhead, aptazymes; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT Rev protein
RL: ANT (Analyte); ANST (Analytical study)
(peptide; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT Biosensors
(quartz crystal microbalance; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT Microbalances
(quartz crystal; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT Human immunodeficiency virus 1
Mass

(ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT Ligands
RL: ANT (Analyte); ANST (Analytical study)
(ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT 37353-39-2, Rna Ligase
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(L1, -based aptazyme; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT 155807-64-0, Cleavase
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(aptazyme; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT 14808-60-7, Quartz, analysis
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(crystal microbalance; ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT 58-55-9, Theophylline 141237-50-5
RL: ANT (Analyte); ANST (Analytical study)
(ribozyme-mediated signal augmentation on mass-sensitive biosensor)

IT 921635-78-1D, immobilized 921635-79-2D, immobilized 921635-80-5D, immobilized
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); TEM (Technical or engineered material use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ribozyme-mediated signal augmentation on mass-sensitive biosensor)

L4 ANSWER 2 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2
AN 2005:133495 CAPLUS
DN 142:368686
TI Functional RNA microarrays for high-throughput screening of antiprotein aptamers
AU Collett, James R.; Cho, Eun Jeong; Lee, Jennifer F.; Levy, Matthew; Hood, Allysia J.; Wan, Christine; Ellington, Andrew D.
CS Department of Chemistry and Biochemistry, Institute for Cellular and Molecular Biology, University of Texas at Austin, Austin, TX, 78712, USA
SO Analytical Biochemistry (2005), 338(1), 113-123
CODEN: ANBCA2; ISSN: 0003-2697
PB Elsevier
DT Journal
LA English
AB High-throughput methods for generating aptamer microarrays are described. As a proof-of-principle, the microarrays were used to screen the affinity and specificity of a pool of robotically selected antilysozyme RNA aptamers. Aptamers were transcribed in vitro in reactions supplemented with biotinyl-GMP, which led to the specific addition of a 5' biotin moiety, and then spotted on streptavidin-coated microarray slides. The aptamers captured target protein in a dose-dependent manner, with linear signal response ranges that covered seven orders of magnitude and a lower limit of detection of 1 pg/mL (70 fM). Aptamers on the microarray retained their specificity for target protein in the presence of a 10,000-fold (weight/weight) excess of T-4 cell lysate protein. The RNA aptamer microarrays performed comparably to current antibody microarrays and within the clin. relevant ranges of many disease biomarkers. These

methods should also prove useful for generating other functional RNA microarrays, including arrays for genomic noncoding RNAs that bind proteins. Integrating RNA aptamer microarray production with the maturing technol. for automated in vitro selection of antiprotein aptamers should result in the high-throughput production of proteome chips.

RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Functional RNA microarrays for high-throughput screening of antiprotein aptamers

AU Collett, James R.; Cho, Eun Jeong; Lee, Jennifer F.; Levy, Matthew; Hood, Allysia J.; Wan, Christine; Ellington, Andrew D.

AB High-throughput methods for generating aptamer microarrays are described. As a proof-of-principle, the microarrays were used to screen the affinity and specificity of a pool of robotically selected antilysozyme RNA aptamers. Aptamers were transcribed in vitro in reactions supplemented with biotinyl-GMP, which led to the specific addition of a 5' biotin moiety, and then spotted on streptavidin-coated microarray slides. The aptamers captured target protein in a dose-dependent manner, with linear signal response ranges that covered seven orders of magnitude and a lower limit of detection of 1 pg/mL (70 fM). Aptamers on the microarray retained their specificity for target protein in the presence of a 10,000-fold (weight/weight) excess of T-4 cell lysate protein. The RNA aptamer microarrays performed comparably to current antibody microarrays and within the clin. relevant ranges of many disease biomarkers. These methods should also prove useful for generating other functional RNA microarrays, including arrays for genomic noncoding RNAs that bind proteins. Integrating RNA aptamer microarray production with the maturing technol. for automated in vitro selection of antiprotein aptamers should result in the high-throughput production of proteome chips.

ST proteome RNA aptamer microarray lymphoblast

IT Aptamers
DNA microarray technology
Gene expression profiles
Lymphoblast
(functional RNA microarrays for high-throughput screening of antiprotein aptamers)

IT Proteome
RNA
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(functional RNA microarrays for high-throughput screening of antiprotein aptamers)

IT 9001-63-2, Lysozyme
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(functional RNA microarrays for high-throughput screening of antiprotein aptamers)

L4 ANSWER 3 OF 13 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN

AN 2004:233033 BIOSIS

DN PREV200400235387

TI In vitro selection of signaling aptamers.

AU Rajendran, Manjula [Inventor, Reprint Author]; Ellington, Andrew D. [Inventor]; Jhaveri, Sulay D. [Inventor]

CS Austin, TX, USA

ASSIGNEE: Research Development Foundation

PI US 6706481 20040316

SO Official Gazette of the United States Patent and Trademark Office Patents, (Mar 16 2004) Vol. 1280, No. 3. http://www.uspto.gov/web/menu/patdata.html . e-file.
ISSN: 0098-1133 (ISSN print).

DT Patent

LA English

ED Entered STN: 28 Apr 2004
Last Updated on STN: 28 Apr 2004

AB The present invention provides a method for the in vitro selection of signaling aptamers comprising the steps of synthesizing a DNA pool, the DNA having a random insert of nucleotides of a specific skewed mole ratio; amplifying the DNA pool; transcribing an RNA pool from the amplified DNA using a fluorescently labeled nucleotide; applying the fluorescently labeled RNA pool to an affinity column to remove the high-affinity fluorescent RNA molecules from the fluorescently labeled RNA pool; obtaining a cDNA pool from the high-affinity fluorescent RNA molecules; repeating the amplification and selection steps on the fluorescent RNA molecules and cloning the fluorescent RNA molecules to yield signaling aptamers. Signaling aptamers comprising DNA molecules are also selected for. Also provided is a signaling aptamer that transduces the conformational change upon binding a ligand to a change in fluorescence intensity of the signaling aptamer.
TI In vitro selection of signaling aptamers.
AU Rajendran, Manjula [Inventor, Reprint Author]; Ellington, Andrew D. [Inventor]; Jhaveri, Sulay D. [Inventor]
AB The present invention provides a method for the in vitro selection of signaling aptamers comprising the steps of synthesizing a DNA pool, the DNA having a random insert of nucleotides of a specific skewed mole ratio; amplifying the DNA pool; transcribing an RNA pool from the amplified DNA using a fluorescently labeled nucleotide; applying the fluorescently labeled RNA pool to an affinity column to remove the high-affinity fluorescent RNA molecules from the fluorescently labeled RNA pool; obtaining a cDNA pool from the high-affinity fluorescent RNA molecules; repeating the amplification and selection steps on the fluorescent RNA molecules and cloning the fluorescent RNA molecules to yield signaling aptamers. Signaling aptamers comprising DNA molecules are also selected for. Also provided is a signaling aptamer that transduces the conformational change upon binding a ligand to a change in fluorescence intensity of the signaling aptamer.
IT Major Concepts
Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics)
IT Chemicals & Biochemicals
fluorescent RNA molecules; signaling aptamers
IT Methods & Equipment
fluorescent RNA molecule cloning: genetic techniques, laboratory techniques; signaling aptamer in vitro selection: laboratory techniques

L4 ANSWER 4 OF 13 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN
AN 2003:564734 BIOSIS
DN PREV200300566583
TI In vitro selection of molecular beacons.
AU Rajendran, Manjula; Ellington, Andrew D. [Reprint Author]
CS Department of Chemistry and Biochemistry, Institute for Cell and Molecular Biology, University of Texas at Austin, Austin, TX, 78712, USA
andy.ellington@mail.utexas.edu
SO Nucleic Acids Research, (October 1 2003) Vol. 31, No. 19, pp. 5700-5713. print.
ISSN: 0305-1048 (ISSN print).
DT Article
LA English
ED Entered STN: 3 Dec 2003
Last Updated on STN: 3 Dec 2003
AB While molecular beacons are primarily known as biosensors for the detection of nucleic acids, it has proven possible to adapt other nucleic acid binding species (aptamers) to function in a manner similar to molecular beacons, yielding fluorescent signals only in the presence of a cognate ligand. Unfortunately, engineering aptamer beacons

requires a detailed knowledge of aptamer sequence and structure. In order to develop a general method for the direct selection of aptamer beacons we have first developed a selection method for molecular beacons. A pool of random sequence DNA molecules were immobilized via a capture oligonucleotide on an affinity column, and those variants that could be released from the column by a target oligonucleotide were amplified. After nine rounds of selection and amplification the elution characteristics of the population were greatly improved. A fluorescent reporter in the selected beacons was located adjacent to a DABCYL moiety in the capture oligonucleotide; addition of the target oligonucleotide led to release of the capture oligonucleotide and up to a 17-fold increase in fluorescence. Signaling was specific for the target oligonucleotide, and occurred via a novel mechanism, relative to designed molecular beacons. When the target oligonucleotide is bound it can form a stacked helical junction with an intramolecular hairpin in the selected beacon; formation of the intramolecular hairpin in turn leads to release of the capture oligonucleotide. The ability to select molecular beacons may prove useful for identifying available sites on complex targets, such as mRNAs, while the method for selection can be easily generalized to other, non-nucleic acid target classes.

AU Rajendran, Manjula; Ellington, Andrew D. [Reprint Author]

AB . . possible to adapt other nucleic acid binding species (aptamers) to function in a manner similar to molecular beacons, yielding fluorescent signals only in the presence of a cognate ligand. Unfortunately, engineering aptamer beacons requires a detailed knowledge of aptamer sequence and. . . addition of the target oligonucleotide led to release of the capture oligonucleotide and up to a 17-fold increase in fluorescence. Signaling was specific for the target oligonucleotide, and occurred via a novel mechanism, relative to designed molecular beacons. When the target. . .

IT Major Concepts
Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics)

IT Chemicals & Biochemicals
DNA; mRNA [messenger RNA]; nucleic acid: detection

L4 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 3

AN 2003:27896 CAPLUS

DN 139:193769

TI Simultaneous detection of diverse analytes with an aptazyme ligase array

AU Hesselberth, Jay R.; Robertson, Michael P.; Knudsen, Scott M.; Ellington, Andrew D.

CS Institute for Cellular and Molecular Biology, Department of Chemistry and Biochemistry, University of Texas at Austin, Austin, TX, 78712, USA

SO Analytical Biochemistry (2003), 312(2), 106-112
CODEN: ANBCA2; ISSN: 0003-2697

PB Elsevier Science

DT Journal

LA English

AB Allosteric ribozymes (aptazymes) can transduce the noncovalent recognition of analytes into the catalytic generation of readily observable signals. Aptazymes are easily engineered, can detect diverse classes of biol. relevant mols., and have high signal-to-noise ratios. These features make aptazymes useful candidates for incorporation into biosensor arrays. Allosteric ribozyme ligases that can recognize a variety of analytes ranging from small orgs. to proteins have been generated. Upon incorporation into an array format, multiple different aptazyme ligases were able to simultaneously detect their cognate analytes with high specificity. Analyte concns. could be accurately measured into the nanomolar range. The fact that analytes induced the formation of new covalent bonds in aptazyme ligases (as opposed to noncovalent bonds in antibodies) potentiated stringent washing of the array, leading to improved signal-to-noise ratios and limits of detection.

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AU Hesselberth, Jay R.; Robertson, Michael P.; Knudsen, Scott M.; Ellington, Andrew D.

AB Allosteric ribozymes (aptazymes) can transduce the noncovalent recognition of analytes into the catalytic generation of readily observable signals. Aptazymes are easily engineered, can detect diverse classes of biol. relevant mols., and have high signal-to-noise ratios. These features make aptazymes useful candidates for incorporation into biosensor arrays. Allosteric ribozyme ligases that can recognize a variety of analytes ranging from small orgs. to proteins have been generated. Upon incorporation into an array format, multiple different aptazyme ligases were able to simultaneously detect their cognate analytes with high specificity. Analyte concns. could be accurately measured into the nanomolar range. The fact that analytes induced the formation of new covalent bonds in aptazyme ligases (as opposed to noncovalent bonds in antibodies) potentiated stringent washing of the array, leading to improved signal-to-noise ratios and limits of detection.

IT 37353-39-2, RNA ligase
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(ribozyme; simultaneous detection of diverse analytes with allosteric ribozyme ligase array)

L4 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:959781 CAPLUS

TI Exploring ribozyme secondary structure: Lead(II) cleavage mapping of the Rev dependent L1 ribozyme

AU Booth, Lauren; Knudsen, Scott; Robertson, Michael; Ellington, Andrew

CS Chem. & Biochem. Department, University of Texas at Austin, Austin, TX, USA

SO Abstracts, 59th Southwest Regional Meeting of the American Chemical Society, Oklahoma City, OK, United States, October 25-28 (2003), 30
Publisher: American Chemical Society, Washington, D. C.
CODEN: 69ETTV

DT Conference; Meeting Abstract

LA English

AB The rev dependent L1 ribozyme was selected from a pool of RNA to ligate an RNA substrate. Its activity is dependent on the presence of the Rev peptide, a seventeen amino acid, arginine-rich peptide from the HIV-1 Rev protein. It has been found that in the presence of peptide the ribozyme will transition from an inactive to active (able to ligate) form at a rate 20,000 times faster than in the absence of peptide. We are characterizing both the active and inactive structures of the ribozyme to understand the peptide,s role. We have begun to map the inactive and active structure of the rev dependent L1 ribozyme through lead cleavage assays, T1 RNase digestions and alkaline hydrolysis. My data supports a model in which these two structures differ on the secondary level. In particular, we have found significant differences in cleavage patterns near the three stem junction of the ribozyme. The characterization of this ribozyme,s structure will help us better understand how this and other ribozymes work. Ribozymes such as this can be used as a sensor for detecting the presence of an effector. Ligation can be used to generate a detectable signal; for example, a fluorophore conjugated to the substrate could allow optical detection. Alternately, ligating our substrate to our ribozyme creates a larger product, a signal detectable through PCR.

AU Booth, Lauren; Knudsen, Scott; Robertson, Michael; Ellington, Andrew

AB The rev dependent L1 ribozyme was selected from a pool of RNA to ligate an RNA substrate. Its activity is dependent on the presence of the Rev peptide, a seventeen amino acid, arginine-rich peptide from the HIV-1 Rev protein. It has been found that in the presence of

peptide the ribozyme will transition from an inactive to active (able to ligate) form at a rate 20,000 times faster than in the absence of peptide. We are characterizing both the active and inactive structures of the ribozyme to understand the peptide,s role. We have begun to map the inactive and active structure of the rev dependent L1 ribozyme through lead cleavage assays, T1 RNase digestions and alkaline hydrolysis. My data supports a model in which these two structures differ on the secondary level. In particular, we have found significant differences in cleavage patterns near the three stem junction of the ribozyme. The characterization of this ribozyme,s structure will help us better understand how this and other ribozymes work. Ribozymes such as this can be used as a sensor for detecting the presence of an effector. Ligation can be used to generate a detectable signal; for example, a fluorophore conjugated to the substrate could allow optical detection. Alternately, ligating our substrate to our ribozyme creates a larger product, a signal detectable through PCR.

L4 ANSWER 7 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:332363 CAPLUS
DN 136:352314
TI In vitro selection of signaling aptamers via repeated amplification and selection
IN Ellington, Andrew D.; Rajendran, Manjula; Jhaveri, Sulay Dipakkumar
PA Research Development Foundation, USA
SO PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002034935	A2	20020502	WO 2001-US48042	20011026
	WO 2002034935	A3	20040226		
	WO 2002034935	A8	20020725		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2427109	A1	20020502	CA 2001-2427109	20011026
	AU 2002032561	A5	20020506	AU 2002-32561	20011026
	EP 1409720	A2	20040421	EP 2001-988782	20011026
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2004531208	T	20041014	JP 2002-537905	20011026
PRAI	US 2000-244010P	P	20001027		
	WO 2001-US48042	W	20011026		

AB One embodiment of the present invention is a method of selecting signaling aptamers in vitro comprising the steps:. synthesizing a DNA pool where the DNA has a random insert of nucleotides where the nucleotides comprise a specific skewed mole ratio; amplifying the DNA pool; transcribing an RNA pool from the amplified DNA so that a nucleotide used in the RNA transcription is fluorescently labeled; applying the fluorescently labeled RNA pool to an affinity column such that high-affinity fluorescent RNA mols. are removed from the fluorescently labeled RNA pool; obtaining a cDNA pool from the high affinity fluorescent RNA mols.;

repeating the amplification and selection steps on the high affinity fluorescent RNA mols. and cloning the selected fluorescent RNA mols. where the clones comprise signaling aptamers.
In an aspect of this embodiment the nucleotides used in the RNA amplification may be chemical-modified. Preferably, the DNA has a random insert of 51 nucleotides skewed in the mole ratio of 3:3:2:0.38 A:C:G:T. The fluorescent label may be a fluorescent dye and is appended to a specific nucleotide wherein said fluorescently labeled nucleotide is incorporated into the RNA during transcription. Representative examples of a fluorescent dye are fluorescein, Cascade Blue and Rhodamine Green. Preferably, the fluorescent RNA contains from about one to three nucleotides bearing the fluorescent label wherein the fluorescent RNA is a signaling aptamer. In a preferred embodiment of the present invention, there is provided a selected signaling aptamer containing from one to three fluoresceinated uridines. Anti-adenosine aptamers were selected from a pool that was skewed to contain very few fluoresceinated uridines. The primary family of aptamers showed a doubling of relative fluorescence intensity at saturating concns. of a cognate analyte, ATP, and could sense ATP concns. as low as 25 μM. A single uridine was present in the best signaling aptamer.
Surprisingly, other dyes could substitute for fluorescein and still specifically signal the presence of ATP, indicating that the single uridine functioned as a general "switch" for transducing mol. recognition to optical signals.

TI In vitro selection of signaling aptamers via repeated amplification and selection

IN Ellington, Andrew D.; Rajendran, Manjula; Jhaveri, Sulay Dipakkumar

AB One embodiment of the present invention is a method of selecting signaling aptamers in vitro comprising the steps:. synthesizing a DNA pool where the DNA has a random insert of nucleotides where the nucleotides comprise a specific skewed mole ratio; amplifying the DNA pool; transcribing an RNA pool from the amplified DNA so that a nucleotide used in the RNA transcription is fluorescently labeled; applying the fluorescently labeled RNA pool to an affinity column such that high-affinity fluorescent RNA mols. are removed from the fluorescently labeled RNA pool; obtaining a cDNA pool from the high affinity fluorescent RNA mols.; repeating the amplification and selection steps on the high affinity fluorescent RNA mols. and cloning the selected fluorescent RNA mols. where the clones comprise signaling aptamers.
In an aspect of this embodiment the nucleotides used in the RNA amplification may be chemical-modified. Preferably, the DNA has a random insert of 51 nucleotides skewed in the mole ratio of 3:3:2:0.38 A:C:G:T. The fluorescent label may be a fluorescent dye and is appended to a specific nucleotide wherein said fluorescently labeled nucleotide is incorporated into the RNA during transcription. Representative examples of a fluorescent dye are fluorescein, Cascade Blue and Rhodamine Green. Preferably, the fluorescent RNA contains from about one to three nucleotides bearing the fluorescent label wherein the fluorescent RNA is a signaling aptamer. In a preferred embodiment of the present invention, there is provided a selected signaling aptamer containing from one to three fluoresceinated uridines. Anti-adenosine aptamers were selected from a pool that was skewed to contain very few fluoresceinated uridines. The primary family of aptamers showed a doubling of relative fluorescence intensity at saturating concns. of a cognate analyte, ATP, and could sense ATP concns. as low as 25 μM. A single uridine was present in the best signaling aptamer.
Surprisingly, other dyes could substitute for fluorescein and still specifically signal the presence of ATP, indicating that the single uridine functioned as a general "switch" for transducing mol. recognition to optical signals.

ST RNA fluorescein uridine aptamer ATP detection; sequence

RNA fluorescein uridine aptamer ATP detection

IT Nucleic acid amplification (method)
(DNA; in vitro selection of signaling aptamers via repeated amplification and selection)

IT Purification
(affinity, of fluorescently labeled RNA pool; in vitro selection of signaling aptamers via repeated amplification and selection)

IT Nucleotides, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(analogs, chemical-modified, use in RNA transcription; in vitro selection of signaling aptamers via repeated amplification and selection)

IT Conformational transition
(aptamer having; in vitro selection of signaling aptamers via repeated amplification and selection)

IT Nucleic acids
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); CST (Combinatorial study, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); USES (Uses)
(binding species (aptamers); in vitro selection of signaling aptamers via repeated amplification and selection)

IT Fluorescence resonance energy transfer
(change in, aptamer inducing; in vitro selection of signaling aptamers via repeated amplification and selection)

IT Nucleotides, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(conjugates, with fluorescent dye; in vitro selection of signaling aptamers via repeated amplification and selection)

IT Anisotropy
(fluorescence, change in, aptamer inducing; in vitro selection of signaling aptamers via repeated amplification and selection)

IT Combinatorial chemistry
RL: BIOL (Biological study); CMBI (Combinatorial study); USES (Uses)
(in vitro election of signaling aptamers via repeated amplification and selection)

IT Fluorescent dyes
Molecular cloning
Molecular recognition
Transcription, genetic
cDNA sequences
(in vitro selection of signaling aptamers via repeated amplification and selection)

IT RNA
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); CST (Combinatorial study, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); USES (Uses)
(in vitro selection of signaling aptamers via repeated amplification and selection)

IT Fluorescence
(intensity or wavelength, change in, aptamer inducing; in vitro selection of signaling aptamers via repeated amplification and selection)

IT DNA
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(single-stranded, use in aptamer selection; in vitro selection of signaling aptamers via repeated amplification and selection)

IT cDNA
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES

(Uses)
(synthesis from RNA; in vitro selection of signaling aptamers via repeated amplification and selection)

IT Affinity chromatography
(use in purification of fluorescently labeled RNA pool; in vitro selection of signaling aptamers via repeated amplification and selection)

IT 138039-55-1D, Cascade Blue, conjugates with UTP
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Cascade Blue, RNA labeling with; in vitro selection of signaling aptamers via repeated amplification and selection)

IT 2321-07-5, Fluorescein 82354-19-6D, Texas Red, conjugates with UTP
189200-71-3D, Rhodamine Green, conjugates with UTP
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(RNA labeling with; in vitro selection of signaling aptamers via repeated amplification and selection)

IT 63-39-8D, Uridine 5'-triphosphate, conjugate with fluorescent dye
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(RNA labeling with; in vitro selection of signaling aptamers via repeated amplification and selection)

IT 56-65-5D, ATP, conjugates with agarose 9012-36-6D, Agarose, conjugates with ATP
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(affinity column; in vitro selection of signaling aptamers via repeated amplification and selection)

IT 63-39-8D, UTP, conjugates with Cascade Blue, Texas Red, or Rhodamine Green
134367-01-4, Fluorescein-12-UTP
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(in vitro selection of signaling aptamers via repeated amplification and selection)

IT 58-96-8D, Uridine, fluoresceinated
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(in vitro selection of signaling aptamers via repeated amplification and selection)

IT 58-61-7, Adenosine, analysis 69-33-0, 7-Deazaadenosine 1867-73-8
2140-79-6, 2'-O-Methyladenosine
RL: ANT (Analyte); ANST (Analytical study)
(ligand, aptamer binding to; in vitro selection of signaling aptamers via repeated amplification and selection)

IT 419928-45-3P, DNA (synthetic RNA aptamer cDNA)
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); CPN (Combinatorial preparation); PRP (Properties); ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); PREP (Preparation); USES (Uses)
(nucleotide sequence; in vitro selection of signaling aptamers via repeated amplification and selection)

IT 419933-04-3, 2: PN: WO0234935 SEQID: 2 unclaimed DNA 419933-05-4
419933-06-5, 4: PN: WO0234935 SEQID: 4 unclaimed RNA
419933-07-6, 5: PN: WO0234935 SEQID: 5 unclaimed RNA
419933-08-7, 6: PN: WO0234935 SEQID: 6 unclaimed RNA
419933-09-8, 7: PN: WO0234935 SEQID: 7 unclaimed RNA
419933-10-1, 8: PN: WO0234935 SEQID: 8 unclaimed RNA
419933-11-2, 9: PN: WO0234935 SEQID: 9 unclaimed RNA
419933-12-3 419933-13-4 419933-14-5 419933-15-6 419933-16-7
419933-17-8 419933-18-9 419933-19-0 419933-20-3
RL: PRP (Properties)
(unclaimed nucleotide sequence; in vitro selection of signaling aptamers via repeated amplification and selection)

IT 419566-37-3

RL: PRP (Properties)
(unclaimed sequence; in vitro selection of signaling aptamers via repeated amplification and selection)

L4 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:696535 CAPLUS
DN 137:243036
TI In vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids
IN Rajendran, Manjula; Ellington, Andrew D.; Jhaveri, Sulay D.
PA Research Development Foundation, USA
SO U.S. Pat. Appl. Publ., 23 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002127581	A1	20020912	US 2001-14973	20011026
	US 6706481	B2	20040316		
	US 2004086924	A1	20040506	US 2003-687125	20031016
PRAI	US 2000-244010P	P	20001027		
	US 2001-14973	A3	20011026		

AB The present invention provides a method for the in vitro selection of signaling nucleic acid aptamers. The method synthesizing a DNA pool having a random insert of nucleotides of a specific skewed mole ratio. The DNA pool is amplified, and an RNA pool transcribed from the amplified DNA using a fluorescently labeled nucleotide. The fluorescently labeled RNA pool is applied to an affinity column to remove the high-affinity fluorescent RNA mols. from the fluorescently labeled RNA pool. A cDNA pool is then obtained from the high-affinity fluorescent RNA mols. The amplification and selection steps is repeated on the fluorescent RNA mols. The fluorescent RNA mols. are then cloned to yield signaling aptamers. Signaling aptamers comprising DNA mols. are also selected for. Also provided is a signaling aptamer that transduces the conformational change upon binding a ligand to a change in fluorescence intensity of the signaling aptamer. The method is exemplified using a DNA pool containing a random 51-nucleotide insert, using dye-UTP for synthesis of fluorescently labeled RNA aptamers, and selecting for affinity for ATP. The dye-UTP may comprise fluorescein-12-UTP, Cascade Blue-7-UTP, Texas Red-5-UTP, or Rhodamine Green-5-UTP.

TI In vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids
IN Rajendran, Manjula; Ellington, Andrew D.; Jhaveri, Sulay D.
AB The present invention provides a method for the in vitro selection of signaling nucleic acid aptamers. The method synthesizing a DNA pool having a random insert of nucleotides of a specific skewed mole ratio. The DNA pool is amplified, and an RNA pool transcribed from the amplified DNA using a fluorescently labeled nucleotide. The fluorescently labeled RNA pool is applied to an affinity column to remove the high-affinity fluorescent RNA mols. from the fluorescently labeled RNA pool. A cDNA pool is then obtained from the high-affinity fluorescent RNA mols. The amplification and selection steps is repeated on the fluorescent RNA mols. The fluorescent RNA mols. are then cloned to yield signaling aptamers. Signaling aptamers comprising DNA mols. are also selected for. Also provided is a signaling aptamer that transduces the conformational change upon binding a ligand to a change in fluorescence intensity of the signaling aptamer.

The method is exemplified using a DNA pool containing a random 51-nucleotide insert, using dye-UTP for synthesis of fluorescently labeled RNA aptamers, and selecting for affinity for ATP. The dye-UTP may comprise fluorescein-12-UTP, Cascade Blue-7-UTP, Texas Red-5-UTP, or Rhodamine Green-5-UTP.

ST nucleic acid aptamer in vitro selection; amplification nucleic acid aptamer in vitro selection; transcription nucleic acid aptamer in vitro selection; affinity chromatog nucleic acid aptamer in vitro selection; RNA aptamer ATP in vitro selection

IT DNA
Nucleic acids
RNA
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(aptamers; in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT Conformation
(binding induction of; in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT Affinity chromatography
Fluorescent dyes
Nucleic acid amplification (method)
Panning
Transcription, genetic
(in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT Fluorescence
Fluorescence resonance energy transfer
(reporter property; in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT 56-65-5D, 5'-ATP, agarose derivative 9012-36-6D, Agarose, ATP derivative
RL: NUU (Other use, unclassified); USES (Uses)
(column; in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT 134367-01-4, Fluorescein-12-UTP 457903-83-2, Cascade Blue-7-UTP
457903-85-4, Texas Red-5-UTP 459131-77-2, Rhodamine Green-5-UTP
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT 56-65-5, ATP, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT 458057-61-9P, RNA (synthetic clone rafl17 ATP-binding)
459468-64-5P, RNA (synthetic clone rafl5 ATP-binding)
459468-65-6P, RNA (synthetic clone rafl7 ATP-binding)
459468-66-7P, RNA (synthetic clone rafl34 ATP-binding)
459468-67-8P, RNA (synthetic clone rafl10 ATP-binding)
459468-68-9P, RNA (synthetic clone rafl11 ATP-binding)
459468-69-0P, RNA (synthetic clone rafl8 ATP-binding)
459468-70-3P, RNA (synthetic clone rafl33 ATP-binding)
459468-71-4P, RNA (synthetic clone rafl14 ATP-binding)
459468-72-5P, RNA (synthetic clone rafl20 ATP-binding)
459468-73-6P, RNA (synthetic clone rafl26 ATP-binding)

459468-74-7P, RNA (synthetic clone rafl28 ATP-binding)
459468-75-8P, RNA (synthetic clone rafl7 ATP-binding)
459468-76-9P 459468-77-0P, RNA (synthetic clone rafl7s
ATP-binding) 459468-78-1P 459882-15-6P
RL: BPN (Biosynthetic preparation); BUU (Biological use, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT 459232-79-2 459232-80-5 459232-81-6
RL: PRP (Properties)
(unclaimed nucleotide sequence; in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

IT 419566-37-3
RL: PRP (Properties)
(unclaimed sequence; in vitro selection of nucleic acid signaling aptamers by repeated steps of amplification and transcription of a DNA pool followed by affinity separation of fluorescently labeled nucleic acids)

L4 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 4
AN 2002:469168 CAPLUS
DN 137:121730
TI Selecting nucleic acids for biosensor applications
AU Rajendran, Manjula; Ellington, Andrew D.
CS Department of Chemistry and Biochemistry, University of Texas at Austin, Austin, TX, 78712, USA
SO Combinatorial Chemistry and High Throughput Screening (2002), 5(4), 263-270
CODEN: CCHSFU; ISSN: 1386-2073
PB Bentham Science Publishers
DT Journal; General Review
LA English
AB A review. In vitro selection can be used to generate nucleic acid binding species (aptamers) and catalysts (ribozymes) that can recognize a variety of mols. Because nucleic acid function is largely derived from readily tabulated secondary structures, it has proven possible to engineer aptamers and ribozymes to function as biosensors. Labeling nucleic acids with reporter mols. has yielded simple antibody substitutes, but by relying on ligand-dependent conformational changes it has also proven possible to generate biosensors that can recognize and specifically report the presence of ligands in homogenous solution It may prove possible to generate signaling aptamers and allosteric ribozymes (aptazymes) that are responsive to a large fraction of an organismal proteome or metabolome using automated methods. Nucleic acid biosensor arrays for non-nucleic acid targets could likely be generated with the same facility as DNA chips.
RE.CNT 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD . ALL CITATIONS AVAILABLE IN THE RE FORMAT
AU Rajendran, Manjula; Ellington, Andrew D.
AB A review. In vitro selection can be used to generate nucleic acid binding species (aptamers) and catalysts (ribozymes) that can recognize a variety of mols. Because nucleic acid function is largely derived from readily tabulated secondary structures, it has proven possible to engineer aptamers and ribozymes to function as biosensors. Labeling nucleic acids with reporter mols. has yielded simple antibody substitutes, but by relying on ligand-dependent conformational changes it has also proven possible to generate biosensors that can recognize and specifically report the presence of ligands in homogenous solution It may prove possible to generate signaling aptamers and allosteric ribozymes (aptazymes)

that are responsive to a large fraction of an organismal proteome or metabolome using automated methods. Nucleic acid biosensor arrays for non-nucleic acid targets could likely be generated with the same facility as DNA chips.

IT Conformation
(RNA; selecting nucleic acids for biosensor applications)

L4 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:582091 CAPLUS
DN 135:148955
TI Signaling aptamers for molecular recognition via fluorescence
IN Ellington, Andrew
PA Research Development Foundation, USA
SO PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001057259	A1	20010809	WO 2001-US3500	20010202
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2400006	A1	20010809	CA 2001-2400006	20010202
	US 2001046674	A1	20011129	US 2001-776252	20010202
	EP 1252335	A1	20021030	EP 2001-906937	20010202
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2003521695	T	20030715	JP 2001-555882	20010202
	NZ 520745	A	20040625	NZ 2001-520745	20010202
	AU 784335	B2	20060316	AU 2001-34783	20010202
	ZA 2002006023	A	20030819	ZA 2002-6023	20020730
PRAI	US 2000-179913P	P	20000203		
	WO 2001-US3500	W	20010202		

AB The present invention provides a method of transducing the conformational change undergone by a signaling aptamer upon binding a ligand to a differential signal generated by a reporter mol. Also provided is a method of detecting and quantitating a ligand in solution using an aptamer conjugated to a fluorescent dye (signaling aptamer) to bind to the ligand and measuring the resultant optical signal generated. We have engineered aptamers that contain fluorescent reporters and that signal the presence of cognate ligands in solution Two different anti-adenosine "signaling aptamers", one made from RNA and one from DNA, can selectively signal the presence of adenosine in solution Increases in fluorescence intensity reproducibly follow increases in adenosine concentration, and can be used for quantitation. The facile methods we have developed can potentially be used for generating a wide variety of signaling aptamers for use in sensor arrays.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Signaling aptamers for molecular recognition via fluorescence
IN Ellington, Andrew
AB The present invention provides a method of transducing the conformational change undergone by a signaling aptamer upon binding a ligand to a differential signal generated by a reporter mol. Also

provided is a method of detecting and quantitating a ligand in solution using an aptamer conjugated to a fluorescent dye (signaling aptamer) to bind to the ligand and measuring the resultant optical signal generated. We have engineered aptamers that contain fluorescent reporters and that signal the presence of cognate ligands in solution Two different anti-adenosine "signaling aptamers", one made from RNA and one from DNA, can selectively signal the presence of adenosine in solution Increases in fluorescence intensity reproducibly follow increases in adenosine concentration, and can be used for quantitation. The facile methods we have developed can potentially be used for generating a wide variety of signaling aptamers for use in sensor arrays.

ST fluorometry mol recognition signaling aptamer DNA RNA fluorescein acridine; RNA fluorescein aptamer ATP detection

IT DNA
RNA
RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(aptamer; signaling aptamers for mol. recognition via fluorescence)

IT Sensors
(electrochem.; signaling aptamers for mol. recognition via fluorescence)

IT Biosensors
Colorimetry
Dyes
Emission spectrometry
Fluorescence
Fluorescence excitation
Fluorescent dyes
Molecular recognition
Optical anisotropy
Optical sensors
Polarization
(signaling aptamers for mol. recognition via fluorescence)

IT 58-61-7, Adenosine, biological studies
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(signaling aptamers for mol. recognition via fluorescence)

IT 260-94-6, Acridine 2321-07-5, Fluorescein
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamers for mol. recognition via fluorescence)

IT 150827-40-0D, acridine or fluorescein containing
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamers, ATP-R-Ac13 and ATP-R-F13; signaling aptamers for mol. recognition via fluorescence)

IT 268198-61-4D, fluorescein containing
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamers, DFL0,DFL7 and DFL8; signaling aptamers for mol. recognition via fluorescence)

L4 ANSWER 11 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 5

AN 2000:142689 CAPLUS

DN 132:331520

TI Designed Signaling Aptamers that Transduce Molecular Recognition to Changes in Fluorescence Intensity

AU Jhaveri, Sulay D.; Kirby, Romy; Conrad, Rick; Maglott, Emily J.; Bowser, Michael; Kennedy, Robert T.; Glick, Gary; Ellington, Andrew D.

CS Department of Chemistry and Biochemistry, University of Texas at Austin, Austin, TX, 78712, USA

SO Journal of the American Chemical Society (2000), 122(11), 2469-2473
CODEN: JACSAT; ISSN: 0002-7863

PB American Chemical Society
DT Journal
LA English
AB We have engineered aptamers that contain fluorescent reporters and that signal the presence of cognate ligands in solution Two different anti-adenosine "signaling aptamers", one made from RNA and one from DNA, can selectively signal the presence of adenosine in solution Increases in fluorescence intensity reproducibly follow increases in adenosine concentration, and can be used for quantitation. The facile methods we have developed can potentially be used for generating a wide variety of signaling aptamers for use in sensor arrays.
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI Designed Signaling Aptamers that Transduce Molecular Recognition to Changes in Fluorescence Intensity
AU Jhaveri, Sulay D.; Kirby, Romy; Conrad, Rick; Maglott, Emily J.; Bowser, Michael; Kennedy, Robert T.; Glick, Gary; Ellington, Andrew D.
AB We have engineered aptamers that contain fluorescent reporters and that signal the presence of cognate ligands in solution Two different anti-adenosine "signaling aptamers", one made from RNA and one from DNA, can selectively signal the presence of adenosine in solution Increases in fluorescence intensity reproducibly follow increases in adenosine concentration, and can be used for quantitation. The facile methods we have developed can potentially be used for generating a wide variety of signaling aptamers for use in sensor arrays.
ST fluorometry mol recognition signaling aptamer DNA RNA fluorescein acridine
IT Fluorometry
Molecular recognition
(designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT DNA
RNA
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamer component; designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT 56-65-5, Adenosine 5'-(tetrahydrogen triphosphate), analysis 58-61-7, Adenosine, analysis
RL: ANT (Analyte); ANST (Analytical study)
(designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT 260-94-6, Acridine 2321-07-5
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamer component; designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT 268198-60-3
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamer, ATP-R-F2; designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT 150827-40-0D, acridine or fluorescein containing
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamers, ATP-R-Ac13 and ATP-R-F13; designed signaling aptamers that transduce mol. recognition to changes in fluorescence intensity)
IT 268198-61-4D, fluorescein containing
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signaling aptamers, DFL0,DFL7 and DFL8; designed signaling aptamers that transduce mol. recognition to changes

in fluorescence intensity)

L4 ANSWER 12 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 6
AN 2000:887475 CAPLUS
DN 135:73559
TI In vitro selection of signaling aptamers
AU Jhaveri, Sulay; Rajendran, Manjula; Ellington, Andrew D.
CS Dep. Chem. Biochem., Univ. Texas, Austin, TX, 78712, USA
SO Nature Biotechnology (2000), 18(12), 1293-1297
CODEN: NABIF9; ISSN: 1087-0156
PB Nature America Inc.
DT Journal
LA English
AB Reagentless biosensors that can directly transduce mol. recognition to optical signals should potentiate the development of sensor arrays for a wide variety of analytes. Nucleic acid aptamers that bind ligands tightly and specifically can be readily selected, but may prove difficult to adapt to biosensor applications. We have therefore attempted to develop selection methods that couple the broad mol. recognition properties of aptamers with signal transduction. Anti-adenosine aptamers were selected from a pool that was skewed to contain very few fluoresceinated uridines. The primary family of aptamers showed a doubling of relative fluorescence intensity at saturating concns. of a cognate analyte, ATP, and could sense ATP concns. as low as 25 μM. A single uridine was present in the best signaling aptamer. Surprisingly, other dyes could substitute for fluorescein and still specifically signal the presence of ATP, indicating that the single uridine functioned as a general "switch" for transducing mol. recognition to optical signals.
RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI In vitro selection of signaling aptamers
AU Jhaveri, Sulay; Rajendran, Manjula; Ellington, Andrew D.
AB Reagentless biosensors that can directly transduce mol. recognition to optical signals should potentiate the development of sensor arrays for a wide variety of analytes. Nucleic acid aptamers that bind ligands tightly and specifically can be readily selected, but may prove difficult to adapt to biosensor applications. We have therefore attempted to develop selection methods that couple the broad mol. recognition properties of aptamers with signal transduction. Anti-adenosine aptamers were selected from a pool that was skewed to contain very few fluoresceinated uridines. The primary family of aptamers showed a doubling of relative fluorescence intensity at saturating concns. of a cognate analyte, ATP, and could sense ATP concns. as low as 25 μM. A single uridine was present in the best signaling aptamer. Surprisingly, other dyes could substitute for fluorescein and still specifically signal the presence of ATP, indicating that the single uridine functioned as a general "switch" for transducing mol. recognition to optical signals.
ST RNA fluorescein uridine aptamer ATP detection; sequence
RNA fluorescein uridine aptamer ATP detection
IT RNA
RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); NUU (Other use, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(in vitro selection of signaling aptamers)
IT Biosensors
(in vitro selection of signaling aptamers for)
IT Conformation
(of signaling aptamer for adenosine)
IT 2321-07-5D, Fluorescein, RNA derivs.
RL: ARG (Analytical reagent use); BAC (Biological activity or effector,

except adverse); BSU (Biological study, unclassified); NUU (Other use, unclassified); PRP (Properties); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(in vitro selection of signaling aptamers)

IT 134367-01-4, fluorescein-12-UTP
RL: NUU (Other use, unclassified); USES (Uses)
(in vitro selection of signaling aptamers constructed with)

IT 56-65-5, ATP, analysis 58-61-7, Adenosine, analysis
RL: ANT (Analyte); ANST (Analytical study)
(in vitro selection of signaling aptamers for)

IT 346504-07-2
RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); NUU (Other use, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(nucleotide sequence; in vitro selection of signaling aptamers)

L4 ANSWER 13 OF 13 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 7
AN 1995:210691 CAPLUS
DN 122:3709
TI Isoenzyme-specific inhibition of protein kinase C by RNA aptamers
AU Conrad, Rick; Keranen, Lisa M.; Ellington, Andrew D.; Newton, Alexandra C.
CS Dep. Chem., Indiana Univ., Bloomington, IN, 47405, USA
SO Journal of Biological Chemistry (1994), 269(51), 32051-4
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
AB In vitro selection technol. has been used to purify RNA aptamers from a random sequence pool that can bind to, and specifically inhibit, protein kinase C βII. Two of the selected RNA aptamers bind to this isoenzyme of protein kinase C with nanomolar affinities and inhibit activation with unprecedented selectivity; the highly related, alternatively spliced βI isoenzyme, which differs by 23 residues, is inhibited with 1 order of magnitude lower potency; the next most similar isoenzyme, α, shows no detectable inhibition. The production of isoenzyme-specific inhibitors of protein kinase C opens the possibilities for dissecting the roles of specific protein kinase Cs in the myriad of intracellular signaling pathways.
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ST kinase C protein inhibition RNA aptamer; signal transduction protein kinase c inhibition
IT Ribonucleic acids
RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(aptamer; isoenzyme-specific inhibition of protein kinase C by RNA aptamers)

IT Ribonucleic acid sequences
Signal transduction, biological
(isoenzyme-specific inhibition of protein kinase C by RNA aptamers)

IT Enzymes
RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(isoenzymes, inhibitor; isoenzyme-specific inhibition of protein kinase C by RNA aptamers)

IT 159577-03-4
RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
(ribonucleotide sequence of anti-PKC aptamer, clone 10; isoenzyme-specific inhibition of protein kinase C by RNA aptamers)

IT 159577-02-3
RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
(ribonucleotide sequence of anti-PKC aptamer, clone 6; isoenzyme-specific inhibition of protein kinase C by RNA aptamers)

IT 141436-78-4, Protein kinase C
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(βI isoenzyme; isoenzyme-specific inhibition of protein kinase C by RNA aptamers)

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